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W45 : Banana (Musa) Genomics

Heterozygosity In Diploid Musa Lines: Implications For Marker Development, Genomics, Sequencing And Breeding Vegetatively Propagated Crops

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Musa species (bananas and plantains) are usually vegetatively propagated, and we have measured the levels and nature of heterozygosity within various accessions to examine genetic and genomic diversity, to compare heterozygosity with other species which are in-breeding, to investigate the feasibility of shot-gun sequencing approaches in potentially heterozygous plants, to optimise marker development, and to better characterize a single doubled-haploid *Musa* accession. We studied genic regions, areas flanking SSRs, and non-gene, non-SSR fragments of the genome. We analysed heterozygosity in single plants of various accessions of diploid banana (*Musa*) accessions by two approaches: PCR amplification of fragments of genomic DNA and sequencing, and by comparison of sequenced BACs from homologous chromosome regions from single plants. The study was carried out with a focus on *Musa acuminata* 'Calcutta 4', 'Pahang' and another a *Musa malaccensis* accession, and a doubled haploid line derived from 'Pahang', along with some sequences from *M. schizocarpa* and *M. balbisiana*.

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